



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,585	01/24/2002	Masayuki Naya	Q66584	3468
7590	04/01/2009			
SUGHRUE MION, PLLC 2100 Pennsylvania Avenue, NW Washington, DC 20037-3213				EXAMINER CHIN, CHRISTOPHER L
			ART UNIT 1641	PAPER NUMBER
			MAIL DATE 04/01/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

---

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/053,585

Filing Date: January 24, 2002

Appellant(s): NAYA ET AL.

---

Lenny R. Jiang  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 8/19/08 appealing from the Office action  
mailed 11/5/07.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

No amendment after final has been filed.

Applicants have referenced an amendment filed on August 10, 2007 which added claims 22-25. This amendment was not an after final amendment.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

### **(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

### **(8) Evidence Relied Upon**

6,597,456	Kubo et al	7-2003
6,611,367	Naya et al	8-2003
5,492,840	Malmqvist et al	2-1996

Natsuumi et al "A new High Heat Resistant, high Clarity, and High Humidity Resistant Polymer For Optical Uses" Materials Research Society Symposium Proceedings, Materials Research Society, vol. 150 (April 25, 1989), pp. 245-250, XP009007850.

### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

#### ***Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.

1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-6 and 14-18 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of U.S. Patent No. 6,597,456 in view of Natsuumi et al.

Patent 6,597,456 claims a measuring chip for a surface plasmon resonance sensor comprising:

a dielectric block;

a metal film layer which is formed on a first face of the dielectric block and is brought into contact with a sample;

a light source which emits a light beam;

an optical system which causes the light beam to enter the dielectric block through a second face thereof so that the light beam is reflected in total internal reflection at the interface of the dielectric block and the metal film layer and so that various angles of incidence of the light beam to the interface of the dielectric block and the metal film are obtained;

photodector means which detects attenuation in total internal reflection due to plasmon resonance by detecting the intensity of the light beam which is reflected in total internal reflection and goes outside the dielectric block through a third face thereof; and

a sample holder mechanism for holding the sample on the metal film layer;

wherein the dielectric block of the measuring chip comprises all the first to third faces and the metal film layer integrally formed on the first face of the dielectric block; and

wherein the sample holder mechanism comprises a member which defines above the metal film layer a space which has closed side walls and is flared upward.

Patent '456 differs from the instant invention in not reciting that the dielectric block is composed of a synthetic resin.

Natsuume et al ("A new High Heat Resistant, high Clarity, and High Humidity Resistant Polymer For Optical Uses", Materials Research Society Symposium Proceedings, Materials Research Society, vol. 150 (April 25, 1989), pp. 245-250, XP009007850) discloses a polyolefin polymer material (Zeonex) for optical uses. The polyolefin polymer material has high transmittance properties (page 250).

It would have been obvious to one of ordinary skill in the art to use the polyolefin polymer material of Natsuume et al in the dielectric block of patent '456 because the polyolefin polymer material of Natsuume et al provides the advantage of having high transmittance properties to support the light beam entering the dielectric block. Since the dielectric block of patent '456, as modified by Natsuume et al, is composed of the same material as the instantly claimed dielectric block, it will possess the same

properties – i.e. the intensities of s-polarized component is 50% or less (30% or less and 10% or less). Also the open "comprising" language of the instant claims does not exclude the additional component in the measuring chip of the '456 patent.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Naya et al (US Patent 6,611,367).

Naya et al disclose a surface plasmon optical modulator element. The element comprises a dielectric block disposed so that light to be modulated travels through the interior of the dielectric block and impinges upon one surface thereof at an angle of total reflection, a metal film formed on one surface of the dielectric block, a photofunctional film formed on the metal film, and an oxygen cut film formed on the photofunctional film (col. 3, lines 29-60). It is preferred when the light to be modulated is linearly polarized light that the dielectric material block be positioned so that the light to be modulated impinges upon said one surface in the form of P-polarized light (col. 4, lines 22-25). The

metal film is formed of a metal which satisfies the condition that surface plasmon resonance is generated. The metal can be gold, silver, copper, or aluminum (col. 5, lines 56-66). The dielectric block can be composed of high refractive index glass or polycarbonate (i.e. a synthetic resin) (col. 4, lines 25-42).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4-6 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naya et al in view of Natsuume et al.

See above for the teachings of Naya et al.

Naya et al differs from the instant invention in failing to teach a dielectric block composed of polymethylmethacrylate or a cycloolefin polymer or a cycloolefin copolymer.

See above for the teachings of Natsuume et al.

It would have been obvious to one of ordinary skill in the art to substitute the Zeonex cycloolefin polymer of Natsuume et al for the high refractive index glass or polycarbonate material in the dielectric block of the surface plasmon optical modulator

element of Naya et al because the high transmittance properties of the Zeonex would provide for a more sensitive optical element.

7. Claims 1-12, 15-18, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malmqvist et al (US Patent 5,492,840) in view of Natsuume et al.

Malmqvist et al discloses a surface plasmon resonance biosensor system. The system includes a replaceable sensor unit consisting of a substrate of a dielectric material, such as glass, which has one of its faces coated with a metal film containing one sensing surface or preferably a plurality of sensing surfaces. Each sensing surface is functionalized for selective interaction with a desired biomolecule. The system also includes an optical instrumentation unit that directs incident beams of light to each of the sensing surfaces on the metal film and detects reflected radiation from the various metal film regions corresponding to each respective one of the sensing surfaces (col. 2, line 64, to col. 3, line 28). The sensor unit is made in one piece, for example, from a glass plate that has been coated with a thin film of a metal, such as silver or gold. To the metal film is attached a layer of an organic polymer or a hydrogel which forms a basal surface that contains functional groups for binding desired ligands (col. 4, lines 5-16).

Malmqvist et al differs from the instant invention in failing to teach using a cycloolefin polymer to support the thin metal film in the sensor unit.

See above for the teachings of Natsuume et al.

It would have been obvious to one of ordinary skill in the art to substitute a plate composed of the Zeonex cycloolefin polymer of Natsuume et al for the glass plate in the

sensor unit of Malmqvist et al because the high transmittance properties of the Zeonex would provide for a more sensitive sensor unit.

#### **(10) Response to Argument**

##### **(A.) Nonstatutory Obviousness-Type Double Patenting Rejection of claims**

**1-6 and 14-18 over claim 13 of Kubo et al (US Patent 6,597,456) in view of**

**Natsuume et al (herein referred to as Natsuume).**

- Appellants argue that claim 1 includes certain structural characteristics concerning the dielectric block. These structural characteristics are such that s-polarization of light be limited in the dielectric block. Though this feature of the dielectric block is described in functional terms, it is the structure of the block that results in the polarization characteristic as claimed.

Appellant's arguments have been considered but are not convincing. With respect to a functional limitation, claim 1 only requires the dielectric block have s-polarization limiting properties. There is no language in claim 1 that suggests any true structural limitations in the claimed dielectric block for providing the s-polarization limiting properties, other than the block be of a synthetic resin. It is not clear as to what "structure" of the block Appellants are referring to. Appellants appear to be arguing a limitation that is not claimed.

- To address the Examiner's position that the Zeonex cycloolefin of Natsuume is the same material used in the instant invention and thus have the same properties, Appellants argue that even though Natsuume discloses the polyolefin polymer Zeonex,

the polarization properties and birefringence level of a dielectric are not dependent only on the material of the dielectric, as shape and molding/processing conditions are also other factors which would determine the polarization properties and birefringence level of the dielectric. Evidence of such factors effecting polarization properties and birefringence level were previously submitted in a submission dated March 19, 2007.

Appellant's arguments have been considered but are not convincing. With respect to Appellant's argument concerning differences in polarization properties and birefringence levels caused by the shape of the dielectric block, the instant claims fail to recite any limitations concerning the shape of the claimed dielectric block. Thus, Appellants appear to be arguing a limitation that is not recited in the claims and thus cannot be relied upon to overcome Natsuume. With respect to Appellant's reliance on Reference 3 in the submission dated March 19, 2007 to show substantial birefringence problems of a cycloolefin polymer, it should be noted that Reference 3 may show what Appellants are saying but there is no indication that the cycloolefin shown in Reference 3 is the Zeonex material of Natsuume. Thus, the evidence shown in Reference 3 cannot be relied upon to overcome Natsuume.

With respect to Appellant's argument concerning the molding/processing conditions of the dielectric, the instant claims are directed to an apparatus, not a method for making the dielectric block. Appellant's arguments directed to how the dielectric block is made are not on point with the claimed apparatus.

- Appellants further argue that even though Natsuume discloses a polyolefin polymer Zeonex, Natsuume's Zeonex is but one form of a polyolefin polymer, as

Zeonex has many different resin grades, such as but not limited to Zeonex 250, Zeonex 280, Zeonex 280R, Zeonex 280S, Zeonex 330R, etc. As such Natsuume's general disclosure of a polyolefin polymer Zeonex would not teach or suggest such a dielectric block with characteristics which are specifically recited in claim 1.

Appellant's argument has been considered but is not convincing. The instant specification suggests that all cycloolefins are suitable for use in the claimed dielectric block. Page 37 of the instant specification discloses the use of Zeonex 330R, ZEONOR, and ABERU which are all cycloolefins. The instant specification does not provide any teaching that would exclude any specific cycloolefins. And given that the Zeonex disclosed in Natsuume is a cycloolefin that is related to Zeonex 330R, one would expect the Zeonex of Natsuume to have the same properties as the Zeonex 330R disclosed in the instant specification which is taught as an acceptable material for the claimed dielectric block.

**(B.) 35 U.S.C. 102(e) Rejection of claims 1-3 over Naya et al and 35 U.S.C. 103(a) Rejection of claims 4-6 and 22-25 over Naya et al in view of Natsuume et al.**

- Appellants argue that the fact that the materials disclosed in Naya and Natsuume do not appear to expressly or inherently include the limitation on s-polarization as claimed.

Appellant's arguments have been considered but are not convincing. Appellant's arguments concerning the Natsuume reference have been addressed above. With respect to Naya, the polycarbonate material taught by Naya is a dielectric material and is considered to have the s-polarization properties recited in the claims. The instant

claims only require a block made of dielectric material. There are no other structural or composition limitations associated with the claimed block. Given its broadest reasonable interpretation, any dielectric block should have the requisite s-polarization properties recited in claim 1. Appellants have provided no experimental evidence to suggest that the polycarbonate material of Naya does not exhibit the same s-polarization properties recited in the dielectric block of claim 1. While Appellants refer again to Reference 3 of the submission dated March 19, 2007 to support their position, it should be noted that Reference 3 does not reflect experimental evidence using the polycarbonate of Naya.

**(C.) 35 U.S.C. 103(a) Rejection of claims 1-12, 15-18, and 22-25 over Malmqvist et al in view of Natsuume et al.**

- Appellants argue that Malmqvist in view of Natsuume do not teach or suggest the features of claim 1, mainly the s-polarization characteristics.

Since Natsuume was relied upon to teach the dielectric block with the s-polarization characteristic, Appellant's arguments concerning Natsuume have been addressed above.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Christopher L. Chin/  
Primary Examiner, Art Unit 1641

Conferees:

/Jeffrey Stucker/  
Supervisory Patent Examiner, Art Unit 1649

/Mark L. Shibuya/  
Supervisory Patent Examiner, Art Unit 1641